

Application No.: 10/608581

Docket No.: TOW-029

REMARKS

Applicant amends claims 1, 3, and 5 and add new claims 8-11. No new matter is added. Claim 2 is canceled. Hence, claims 1, 3-11 are pending, of which claims 1 and 3 are independent. Applicant respectfully submits that the pending claims define over the art of record.

Objection to the Specification

The Examiner objects to the Specification due to minor informalities. Applicant amends the specification to address the Examiner's concerns. Applicant respectfully requests that the Examiner reconsider and withdraw the objections to the Specification.

Double Patenting Rejection

Claims 1-7 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 and 7-8 of copending Application No. 10/609,100. The pending claims of the present application have been amended to clarify that two different reactant gases are allowed to flow on the same surface of the second area. However, copending Application No. 10/609,100 discloses a different separator structure where reactant gasses are supplied to central regions of the electrolyte electrode assembly. Therefore, the amended claims of the present application and the claims in the copending Application No. 10/609,100 are patentably distinct from each other. Applicant respectfully requests that the Examiner reconsider and withdraw the double patenting rejection.

Claim Rejection Under 35 U.S.C. §112

The Examiner rejects claim 5 under second paragraph of 35 U.S.C. §112 for minor informalities. Applicant amends claim 5 to address the Examiner's concern. Applicant respectfully request that the Examiner reconsider and withdraw the rejection of claim 5.

Claim Rejection Under 35 U.S.C. §102

Claims 1 and 4 are rejected under 35 U.S.C. §102(a) as being anticipated by United State Patent Publication No. 2003/0072989 to Lee et al. (hereafter "Lee"). Applicant respectfully submit that the Lee reference does not disclose the limitation of a fuel gas channel and an oxygen-containing gas channel forming on the same surface of the second area and a ridge protruding from the first plate to contact the second plate, as required by amended claim 1.

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The Lee reference discloses a separator 3 that includes air electrode corrugated plates 5a and 5b, fuel electrode corrugated plates 7a and 7b, and a center plate 6 interposed between these plates. See Paragraph 31, lines 1-5. In other words, the separator 3 is composed of three types of plates. Furthermore, reactant gases flow in two different areas located above and below the center plate 6. See Paragraph 36. In other words, the reactant gases flows in two different areas using the center plate 6 as a partition and not on the same surface. In contrast, claim 1 requires that the reactant gases flow in the same surface of the second area and a ridge protruding from the first plate to contact the second plate. The claimed invention has the advantage that the separator can be made of only two plates without the need of a third center plate. Hence, the claimed invention is able to keep the fuel cell small and compact.

Applicant respectfully submit that the Lee reference also does not suggest the limitation of a fuel gas channel and an oxygen-containing gas channel forming on the same surface of the second area, as required by amended claim 1. If only two plates 5a and 7a in the Lee reference were used to form the second area of the claimed invention, the resultant structure would still not enable two different reactant gases, the fuel gas and the oxygen-containing gas, to flow on the same surface of the second area because the gases will mix without the center plate 6, which is not desirable in the Lee reference.

The Lee reference further discloses that an air electrode mask plate 4a and a fuel electrode mask plate 4b are used to prevent the fuel gas and the oxygen-containing gas from mixing with each other. See paragraph 31. Hence, the total number of plates forming the separator 3 increases. In contrast, the claimed invention enables a separator be made of only two plates and have the advantage of decreasing the dimension of the fuel cell in the stacking direction. Hence, the structure of the fuel cell can be kept small and compact. These advantages of the claimed invention cannot be achieved or suggested by the Lee reference.

Accordingly, the Lee reference does not teach or suggest the limitation of a fuel gas channel and an oxygen-containing gas channel forming on the same surface of the second area, as required by amended claim 1. Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claim 1 and its corresponding dependent claim 4.

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Claim Rejection Under 35 U.S.C. §103Claims 2, 3, and 7

Claims 2, 3, and 7 are rejected under 35 U.S.C. §103(a) as being unpatentable over the Lee reference in view of European Patent No. EP 1075033 to Doggwiler et al. (hereafter "Doggwiler"). Applicants respectfully submit the combination of the Lee reference and the Doggwiler reference do not teach or suggest that the limitation of a fuel gas channel and an oxygen-containing gas channel forming on the same surface of the second area, as required by independent claims 1 and 3.

As set forth above, the Lee reference does not teach or suggest the limitation of a fuel gas channel and an oxygen-containing gas channel forming on the same surface of the second area. Applicant respectfully submits that the Doggwiler reference also does not teach or suggest this limitation.

The Doggwiler reference discloses that elevations 41 and 42 are formed on opposite sides of an interconnector 4 thereby dividing the reactant gases. See Fig. 2. Therefore, the reactant gas flows in the two different areas located above and below the interconnector 4 and not on the same surface.

Accordingly, the combination of the Lee reference and the Doggwiler reference do not teach or suggest the limitation of a fuel gas channel and an oxygen-containing gas channel forming on the same surface of the second area, as required by independent claims 1 and 3. Hence, Applicant respectfully request that the Examiner reconsider and withdraw the rejection of claim 3.

Applicant notes that dependent claims also recite separate patentable subject matter. As such, for this and the reasons set forth above, Applicant respectfully submit that the dependent claims also define over the art of record.

Claims 5 and 6

Claims 5 and 6 are rejected under 35 U.S.C. §103(a) as being patentable over the Lee reference in view of United States Patent No. 4983472 to Katz et al. (hereafter "Katz"). Applicant respectfully submits that the combination of the Lee reference and the Katz reference do not teach or suggest the limitation that the first plate has first bosses and the second plate

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have second bosses, and the first bosses and the second bosses protrude toward each other for sandwiching the electrolyte electrode assemblies, as required by amended claim 5.

The Examiner notes that the Lee reference does not teach or suggest bosses formed on the separator plates. Applicant respectfully submit that the Katz reference does not teach or suggest the first plate has first bosses and the second plate have second bosses, and the first bosses and the second bosses protrude toward each other for sandwiching the electrolyte electrode assemblies, as required by amended claim 5.

The Katz reference discloses arches 26 and 28 formed on the same collector plate that is only located between a cathode 20 and a separator 25. In other words, there is no collector plate between the anode 14 and separator 12 and the arches 26 and 28 cannot protrude toward each other as they are on the same collector plate. See Fig. 1. In contrast, claim 5 requires that the first bosses and the second bosses form on the first plate and second plate, respectively. In other words, the first bosses and the second bosses are formed on different plates. Additionally, claim 5 also requires that the first bosses and the second bosses protrude toward each other for sandwiching the electrolyte electrode assemblies.

Accordingly, the combination of the Lee reference and the Katz reference do not teach or suggest that the first plate has first bosses and the second plate have second bosses, and the first bosses and the second bosses protrude toward each other for sandwiching the electrolyte electrode assemblies, as required by amended claim 5. Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 5 and it dependent claim 6.

New Claims

New claims 8-11 depend on claim 3 and recite similar limitations as claims 4-7. The arguments set forth above regarding how claims 4-7 define over the cited prior art apply with equal force here with respect to claims 8-11. Hence, Applicant respectfully submits that the new claims also define over the art of record.

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CONCLUSION

In view of the above amendment, Applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this statement. However, if a fee is due, please charge our Deposit Account No. 12-0080, under Order No. TOW-029 from which the undersigned is authorized to draw.

Dated: March 14, 2006

Respectfully submitted,

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